

CLAIMS

1. A thin air battery comprising:

a power-generating element composed of a laminate in which air diffusing paper, a water repellent film, an air electrode, a separator, and a negative electrode are stacked in this order, and an electrolyte is contained in the air electrode, separator, and negative electrode;

a package composed of a first sheet layer having air inlet holes and covering the air electrode side of the power-generating element, a third sheet layer covering the negative electrode side of the power-generating element, and a second sheet layer located in the peripheral portion between the first sheet layer and the third sheet layer and joined to the two sheet layers; and

a lead of the air electrode and a lead of the negative electrode drawn out of the package from between the second sheet layer and the first sheet layer or third sheet layer; wherein

the first sheet layer, second sheet layer, and third sheet layer each comprise of a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties; and in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side.

2. The thin air battery according to claim 1, wherein the polymer film having hydrogen gas permeability is composed of a material selected from the group consisting of polyethylene, polypropylene, and polysulfone.

3. The thin air battery according to claim 1, wherein the polymer film having gas barrier properties is composed of a material selected from the group consisting of polyethylene naphthalate, polyethylene terephthalate, polyphenylene sulfide, polyamide, polyvinyl chloride, ethylene-vinyl alcohol copolymers, ethylene-vinyl acetate copolymers, and ionomer resins.

4. The thin air battery according to claim 1, wherein the polymer film having gas barrier properties is composed of a fluorine-containing polymer material.

5. The thin air battery according to claim 1, wherein at least one of the first sheet layer, second sheet layer, and third sheet layer comprises a metal sheet layer that is not corroded by aqueous alkaline solutions.

6. A thin film for a package of an alkaline battery formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties.